

I claim:

1. A throttle body assembly, comprising:

- 5 a throttle plate supported by a generally cylindrical throttle body conduit for rotation about a pivot axis, said throttle plate being rotatable into a plurality of partially opened positions to allow airflow through said throttle body assembly and into a generally closed position to inhibit air flow through said throttle body assembly, said throttle plate having a first generally semicircular half at a first side
- 10 of said pivot axis and a second generally semicircular half at a second side of said pivot axis, said first generally semicircular half being rotatable toward an upstream side of said throttle body assembly to place said throttle plate in one of said plurality of partially opened positions, said second generally semicircular half being rotatable toward a downstream side of said throttle body assembly; and
- 15 a block of material attached to said second generally semicircular half of said throttle plate, said block of material having a first major surface and a second major surface, said first major surface being disposed in contact with a surface of said second generally semicircular half of said throttle plate, said second major surface extending away from said surface of said second generally semicircular
- 20 half of said throttle plate, said block of material having a first edge formed in the shape of an arc of a circle and a second edge which circumscribes said first major surface in combination with said first edge, said first edge being disposed in contact with said second generally semicircular half of said throttle plate proximate a generally semicircular perimeter of said throttle plate, said block of material
- 25 being generally symmetrical about a plane which is generally perpendicular to said pivot axis, said plane dividing said block of material into a first side and a second side, said block of material having a central region of said second major surface

disposed between first and second distal regions of said second major surface, the thickness of said first and second distal regions, as measured between said first and second major surfaces, decreasing as a function of the distance from said central region.

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2. The throttle body assembly of claim 1, wherein:

the thickness of said central region, as measured between said first and second major surfaces, decreases as a function of the distance from said first edge in a direction toward said second edge.

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3. The throttle body assembly of claim 1, wherein:

a first hole extends through said block of material in a direction which is generally perpendicular to said pivot axis.

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4. The throttle body assembly of claim 3, wherein:

a second hole extends through said block of material in a direction which is generally perpendicular to said pivot axis.

5. The throttle body assembly of claim 3, wherein:

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said first hole extends through a first edge surface extending from said first edge.

6. The throttle body assembly of claim 3, wherein:

said first hole extending through said second major surface.

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7. The throttle body assembly of claim 4, wherein:

said second hole extends through a first edge surface extending from said first edge.

8. The throttle body assembly of claim 4, wherein:

5 said second hole extends through said second major surface.

9. The throttle body assembly of claim 4, wherein:

said first and second holes are symmetrically located relative to said plane.

10 10. The throttle body assembly of claim 1, wherein:

said block of material is attached to an upstream surface of said throttle plate.

11. The throttle body assembly of claim 1, wherein:

15 said first and second distal regions of said second major surface are each generally hyperbolic in shape to decrease said thickness of said first and second distal regions as a generally hyperbolic function, as measured between said first and second major surfaces, decreasing as a function of the distance from said central region.

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12. A throttle body assembly, comprising:

a throttle plate supported by a generally cylindrical throttle body conduit for rotation about a pivot axis, said throttle plate being rotatable into a plurality of partially opened positions to allow airflow through said throttle body assembly and
25 into a generally closed position to inhibit air flow through said throttle body assembly, said throttle plate having a first generally semicircular half at a first side of said pivot axis and a second generally semicircular half at a second side of said

pivot axis, said first generally semicircular half being rotatable toward an upstream side of said throttle body assembly to place said throttle plate in one of said plurality of partially opened positions, said second generally semicircular half being rotatable toward a downstream side of said throttle body assembly; and

5 a block of material attached to said second generally semicircular half of said throttle plate on an upstream surface of said throttle plate, said block of material having a first major surface and a second major surface, said first major surface being disposed in contact with a surface of said second generally semicircular half of said throttle plate, said second major surface extending away
10 from said surface of said second generally semicircular half of said throttle plate, said block of material having a first edge formed in the shape of an arc of a circle and a second edge which circumscribes said first major surface in combination with said first edge, said first edge being disposed in contact with said second generally semicircular half of said throttle plate proximate a generally semicircular
15 perimeter of said throttle plate, said block of material being generally symmetrical about a plane which is generally perpendicular to said pivot axis, said plane dividing said block of material into a first side and a second side, said block of material having a central region of said second major surface disposed between first and second distal regions of said second major surface, the thickness of said
20 first and second distal regions, as measured between said first and second major surfaces, decreasing as a function of the distance from said central region, the thickness of said central region, as measured between said first and second major surfaces, decreasing as a function of the distance from said first edge in a direction toward said second edge.

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13. The throttle body assembly of claim 12, wherein:

a first hole extends through said block of material in a direction which is generally perpendicular to said pivot axis; and

a second hole extends through said block of material in a direction which is generally perpendicular to said pivot axis.

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14. The throttle body assembly of claim 13, wherein:

said first hole extends through a first edge surface extending from said first edge and said second major surface; and

10 said second hole extends through a first edge surface extending from said first edge and said second major surface.

15. The throttle body assembly of claim 14, wherein:

said first and second holes are symmetrically located relative to said plane.

15 16. The throttle body assembly of claim 12, wherein:

said first and second distal regions of said second major surface are each generally hyperbolic in shape to decrease said thickness of said first and second distal regions as a generally hyperbolic function, as measured between said first and second major surfaces, decreasing as a function of the distance from said
20 central region.

17. A throttle body assembly, comprising:

a throttle plate supported by a generally cylindrical throttle body conduit for rotation about a pivot axis, said throttle plate being rotatable into a plurality of
25 partially opened positions to allow airflow through said throttle body assembly and into a generally closed position to inhibit air flow through said throttle body assembly, said throttle plate having a first generally semicircular half at a first side

of said pivot axis and a second generally semicircular half at a second side of said pivot axis, said first generally semicircular half being rotatable toward an upstream side of said throttle body assembly to place said throttle plate in one of said plurality of partially opened positions, said second generally semicircular half
5 being rotatable toward a downstream side of said throttle body assembly; and

a block of material attached to said second generally semicircular half of said throttle plate on an upstream surface of said throttle plate, said block of material having a first major surface and a second major surface, said first major surface being disposed in contact with a surface of said second generally
10 semicircular half of said throttle plate, said second major surface extending away from said surface of said second generally semicircular half of said throttle plate, said block of material having a first edge formed in the shape of an arc of a circle and a second edge which circumscribes said first major surface in combination with said first edge, said first edge being disposed in contact with said second
15 generally semicircular half of said throttle plate proximate a generally semicircular perimeter of said throttle plate, said block of material being generally symmetrical about a plane which is generally perpendicular to said pivot axis, said plane dividing said block of material into a first side and a second side, said block of material having a central region of said second major surface disposed between
20 first and second distal regions of said second major surface, the thickness of said first and second distal regions, as measured between said first and second major surfaces, decreasing as a function of the distance from said central region, the thickness of said central region, as measured between said first and second major surfaces, decreasing as a function of the distance from said first edge in a direction
25 toward said second edge, said first and second distal regions of said second major surface being each generally hyperbolic in shape to decrease said thickness of said first and second distal regions as a generally hyperbolic function, as measured

between said first and second major surfaces, decreasing as a function of the distance from said central region.

18. The throttle body assembly of claim 17, wherein:

5 a first hole extends through said block of material in a direction which is generally perpendicular to said pivot axis; and

 a second hole extends through said block of material in a direction which is generally perpendicular to said pivot axis.

10 19. The throttle body assembly of claim 18, wherein:

 said first hole extends through a first edge surface extending from said first edge and said second major surface; and

 said second hole extends through a first edge surface extending from said first edge and said second major surface.

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20. The throttle body assembly of claim 19, wherein:

 said first and second holes are symmetrically located relative to said plane.

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